FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

May 12 to May 18, 2013 (Week 20)

Overall Summary

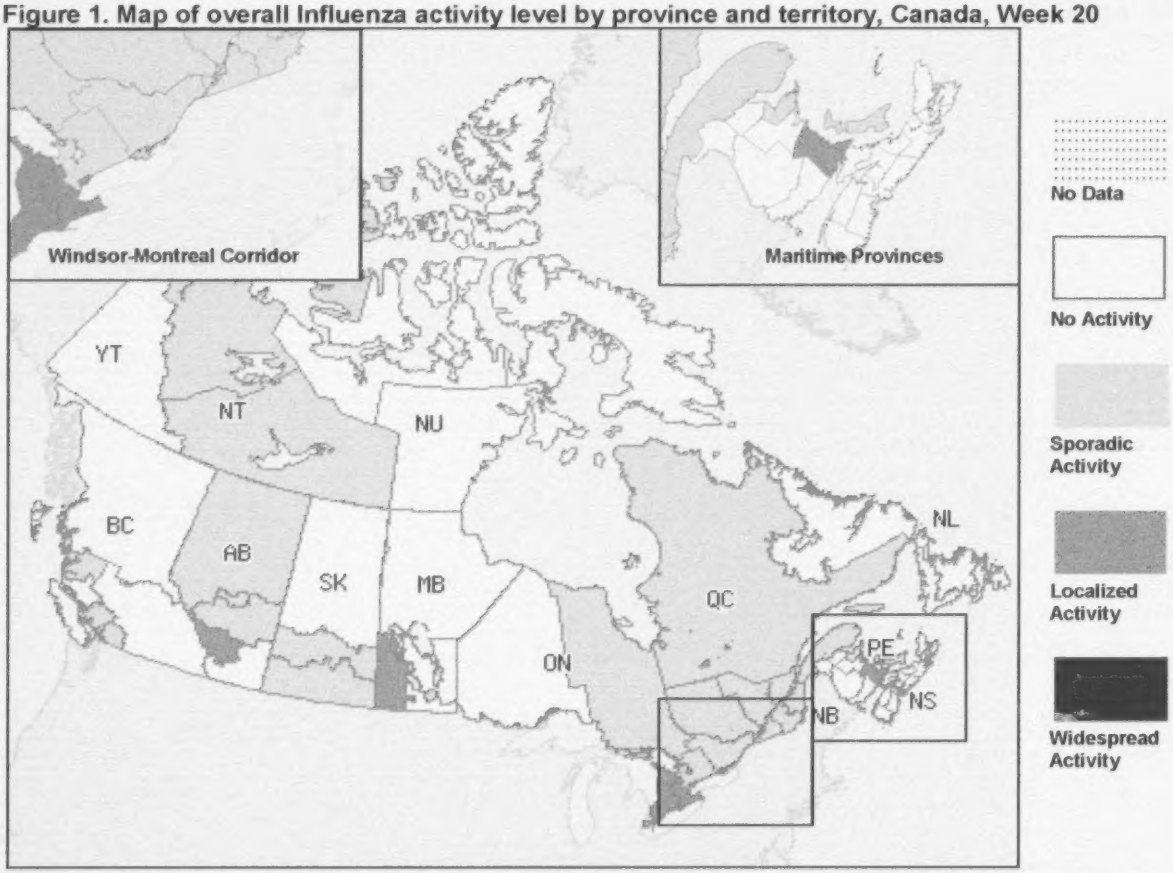
- Influenza activity in Canada continued its slow decline in week 20, with the percentage of laboratory tests positive for influenza at 6.7%. Influenza B was the predominant type, and detections continued to decrease.
- Detections of rhinovirus and parainfluenza continued to increase slowly, while detections of most other respiratory viruses were stable or decreasing in week 20.
- The ILI consultation rate decreased and was within the expected range. The number of regions reporting localized activity was similar to previous weeks.

Note: This is the final weekly report for the 2012-13 influenza season. Bi-weekly reports will commence on June 7th (for weeks 21 and 22). However, laboratory detections reported through the RVDSS and influenza activity level maps will be updated weekly on the FluWatch website.

Influenza Activity (geographic spread) and Outbreaks

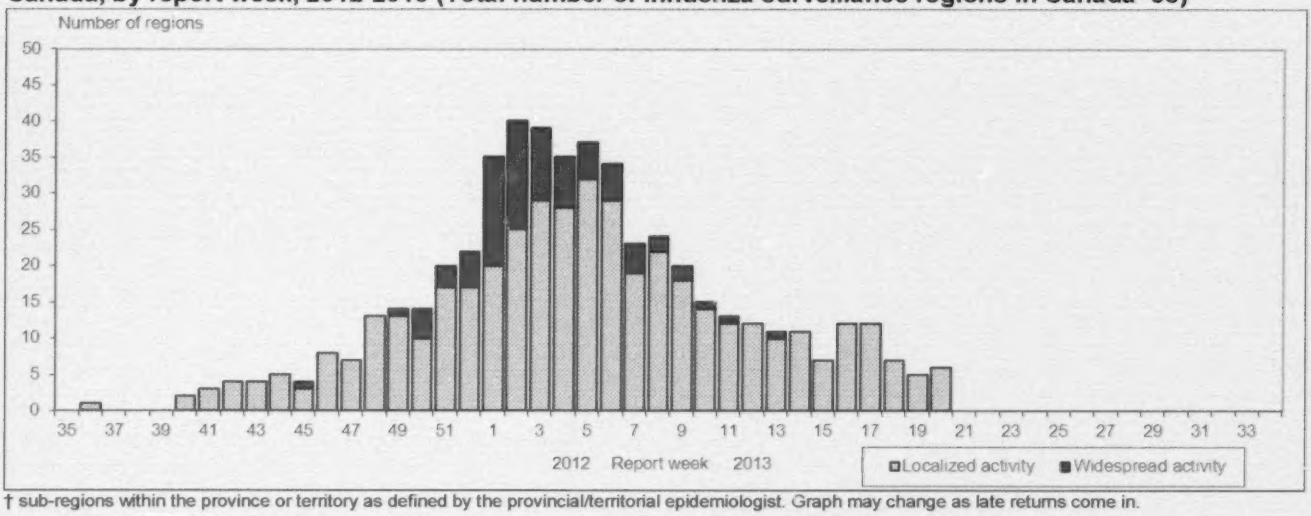
In week 20, six regions [AB(1), MB(1), ON(3), NB(1)] reported localized activity and 21 regions reported sporadic activity. The number of regions reporting localized activity has been similar for the past three weeks (Figures 1 and 2). Three new influenza outbreaks were reported, all in long-term-care facilities (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 20



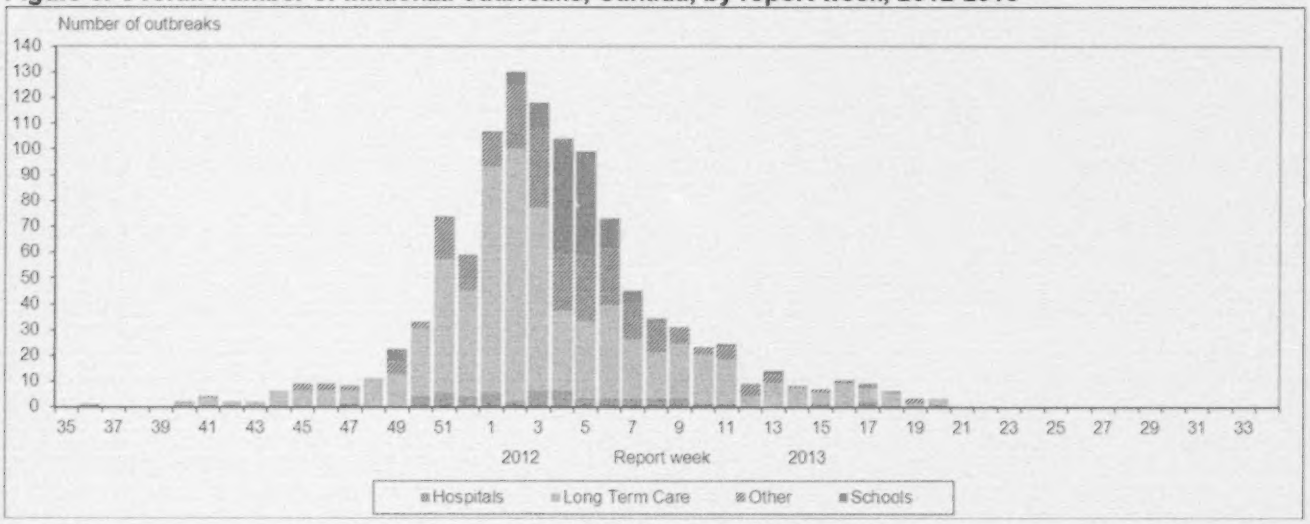
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The overall percentage of positive influenza tests continued to decrease, from 8.4% in week 19 to 6.7% in week 20. Detections of influenza B decreased, and represented 80.1% of total positive influenza detections in week 20 (Figure 4). Among the influenza viruses detected in week 20 (n=161), 19.9% were positive for influenza A viruses [of which 28.1% were A(H1N1)pdm09, 18.8% were A(H3), and 53.1% were A(unsubtyped)] (Table 1). Cumulative influenza virus detections by type/subtype to date are as follows: 85.6% influenza A [34.4% A(H3), 4.6% A(H1N1)pdm09 and 60.9% A(unsubtyped)] and 14.4% influenza B (Table 1).

Detailed information on age and type/subtype has been received for 24,026 cases to date this season (Table 2). The proportion of cases by age group is as follows: 14.2% <5 years; 10.0% between 5-19 years; 15.8% between 20-44 years; 17.0% between 45-64 years of age; 43.0% ≥65 years.

The percentage of positive tests for rhinovirus increased slightly from 16.8% in week 19 to 17.2% in week 20, continuing its upward trend since week 01. The percentage of positive tests for parainfluenza (7.7%) also continued the gradual increase observed since week 08. The percentage of tests positive for respiratory syncytial virus (RSV) (2.4%) continued its decline from a peak in week 08. The percentages of positive tests for human metapneumovirus (hMPV) (4.2%) and coronavirus (1.2%) were stable in week 20 (Figure 5)*.

* For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	Weekly (May 12 to May 18, 2013)						Cumulative (August 26, 2012 to May 18, 2013)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	5	0	2	1	2	13	1913	0	1453	219	241	413
AB	3	0	0	3	0	20	2358	0	1770	444	144	806
SK	3	0	0	1	2	8	839	0	476	74	289	306
MB	1	0	0	0	1	4	659	0	79	10	570	104
ON	11	0	4	3	4	31	8268	0	3784	377	4107	912
QC	3	0	0	0	3	38	9805	0	546	36	9223	1898
NB	5	0	0	0	5	15	1868	0	771	73	1024	86
NS	0	0	0	0	0	0	388	0	165	8	215	7
PE	1	0	0	1	0	0	117	0	76	10	31	1
NL	0	0	0	0	0	0	718	0	152	0	566	16
Canada	**32**	**0**	**6**	**9**	**17**	**129**	**26933**	**0**	**9272**	**1251**	**16410**	**4549**

*Unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (May 12 to May 18, 2013)					Cumulative (Aug. 26, 2012 to May 18, 2013)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	6	3	1	2	10	2662	220	840	1602	751
5-19	1	0	0	1	11	1446	71	623	752	961
20-44	1	1	0	0	8	3163	346	1200	1617	635
45-64	2	1	0	1	6	3446	319	1206	1921	642
65+	3	0	1	2	16	9542	133	3638	5771	778
Unknown	0	0	0	0	0	164	20	143	1	1
Total	**13**	**5**	**2**	**6**	**51**	**20423**	**1109**	**7650**	**11664**	**3768**

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

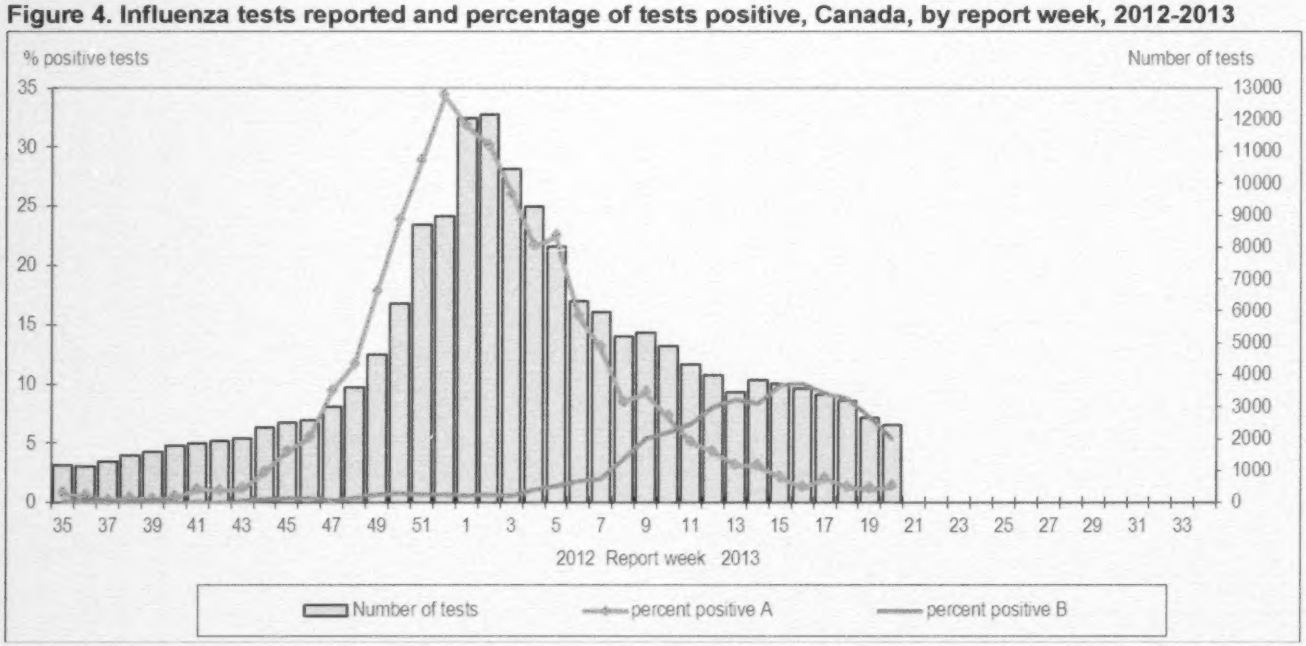
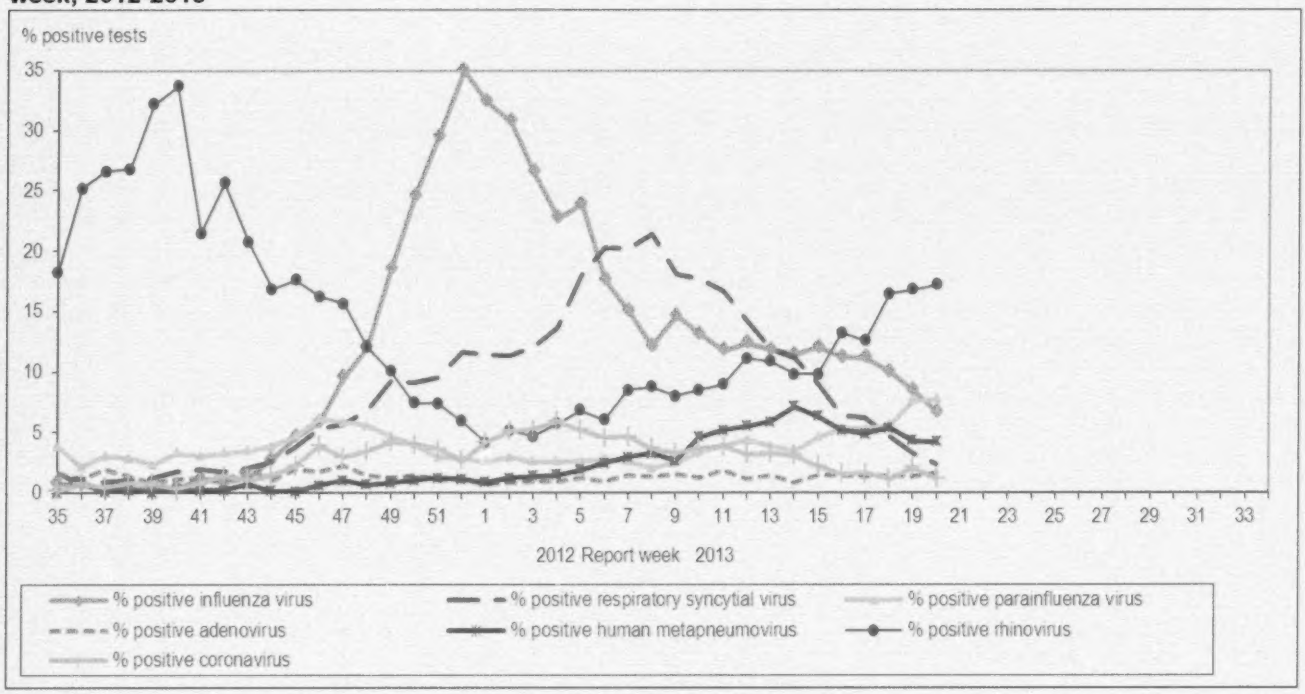


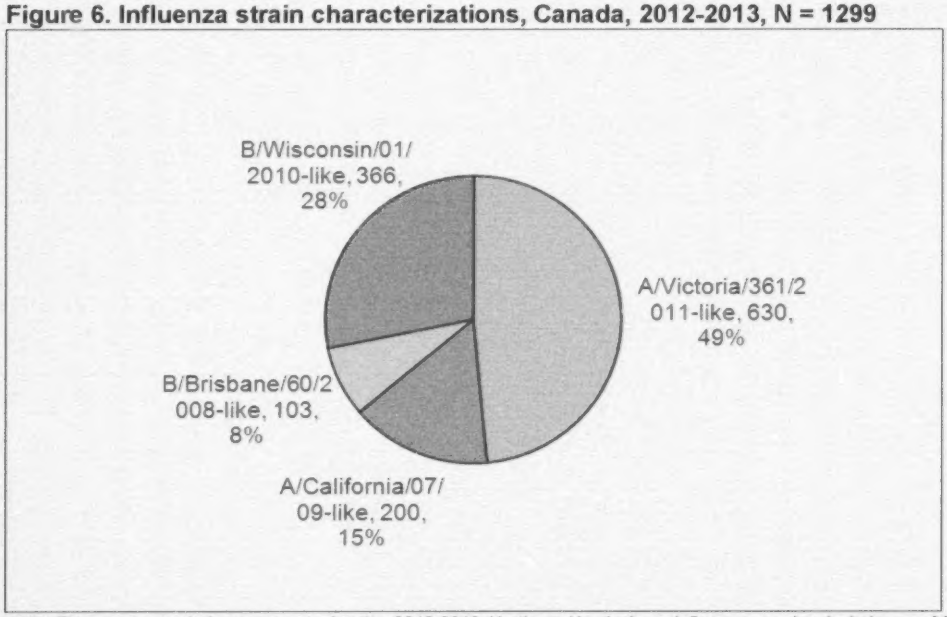
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

During the 2012-13 season, the National Microbiology Laboratory (NML) has antigenically characterized 1299 influenza viruses. The 630 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011 and the 200 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 366 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 103 were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 1299



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

Antiviral Resistance

During the 2012-13 season, NML has tested 1261 influenza viruses for resistance to oseltamivir, and 1222 influenza viruses for resistance to zanamivir. Among these, one A(H3N2) virus was resistant to oseltamivir and zanamivir. A total of 1224 influenza A viruses were tested for amantadine resistance and all but one were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

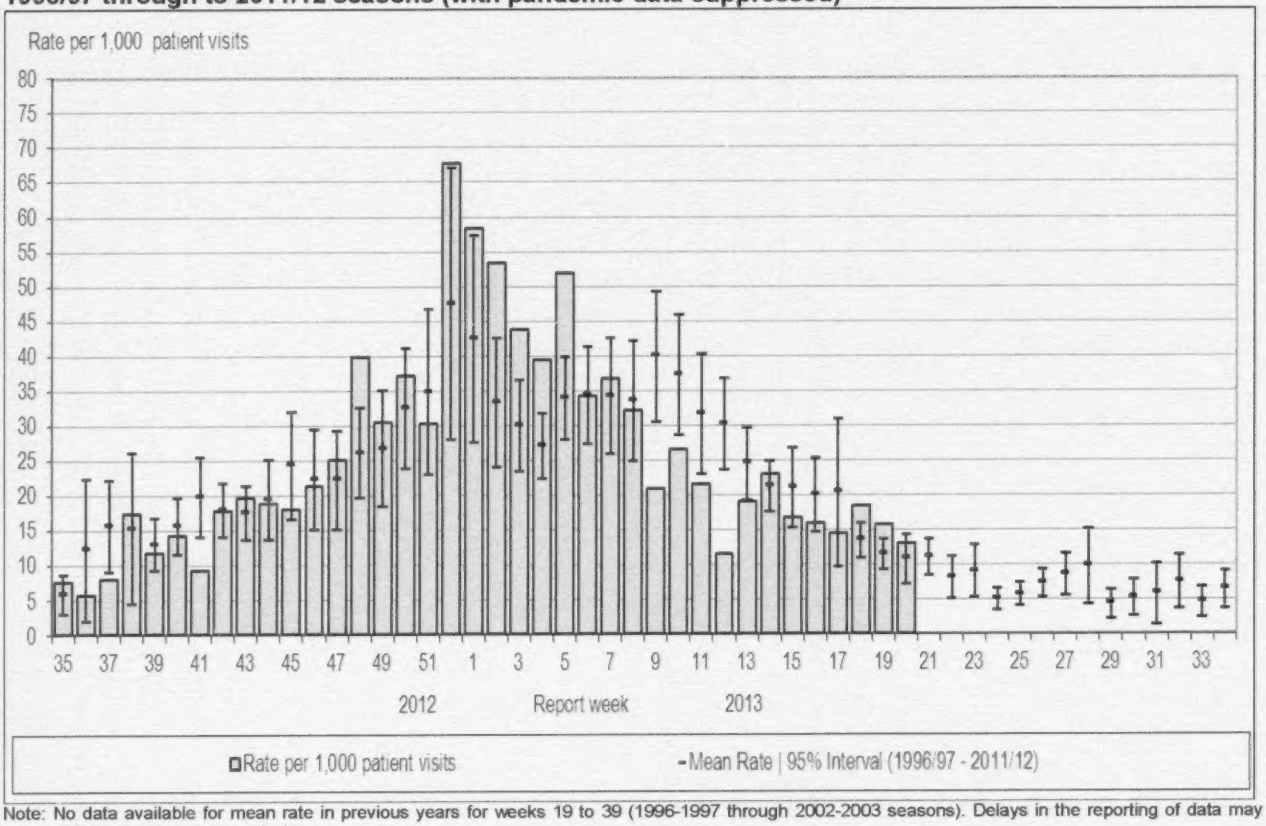
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	597	1 (0.2%)	596	1 (0.2%)	986	985 (99.9%)
A (H1N1)	201	0	197	0	238	238 (100%)
B	463	0	429	0	NA*	NA*
TOTAL	1261	1 (0.1%)	1222	1 (0.1%)	1224	1223 (99.9%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate decreased from 15.6 ILI consultations per 1,000 patient visits in week 19 to 13.0 / 1,000 in week 20, and is within the expected range (Figure 7). In week 20, the highest consultation rate was observed in children less than 5 years of age (31.0/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In week 20, 11 laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network, the same number as in week 19. Nine of the 11 cases reported in week 20 were identified with influenza B. The age distribution is as follows: two cases 0-5 months of age, three 6-23 months of age, three 2-4 years of age, and three 10-16 years of age. Two cases were admitted to an intensive care unit (ICU) during week 20, one child 2-4 years of age and one 10-16 years of age. No deaths were reported in week 20.

Since the start of the 2012-13 season, a total of 873 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 622 (71.2%) with influenza A [of which 120 (19.3%) were A(H3N2), 25 (4.0%) were A(H1N1)pdm09 and the remaining 477 were A(unsubtyped); and 251 (28.8%) with influenza B. The distribution of cases by age group is as follows: 161 (18.4%) <6 months of age; 202 (23.1%) age 6-23 months; 250 (28.6%) age 2-4 years; 186 (21.3%) age 5-9 years; and 74 (8.5%) age 10-16 years. Of the 873 cases, 98 (11.2%) were admitted to the ICU. Of the 73 ICU admissions with available data, 61 (83.6%) cases had at least one underlying condition. One death has been reported to date this season in a child 6-23 months of age with an underlying condition, with influenza B.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths (PCIRN)

Active surveillance of laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network concluded for the 2012-13 influenza season on April 30th, 2013. However, the PCIRN-SOS network continues to report limited data on laboratory-confirmed cases of influenza identified through passive surveillance at 16 out of 17 hospital sites. In week 20, five hospitalizations were reported: four of the five were cases of influenza B and one was influenza A(H3N2); two cases were ≥65 years of age, two were 45-64 years, and one case was <20 years of age. No ICU admissions or deaths were reported in week 20.

The cumulative data for the season to date includes data from active surveillance from November 4, 2012 to April 30, 2013 and data from passive surveillance from May 1 to 18, 2013. The cumulative number of cases was 1,798: 1,622 (90.2%) with influenza A [of which 311 were A(H3N2), 19 were A(H1N1)pdm09, and 1292 were A(unsubtyped)]; 130 (7.2%) with influenza B, and the type has not been reported for 46 cases. The age distribution of hospitalizations is as follows: 1225 (68.1%) were ≥65 years of age, 368 (20.5%) were 45-64 years, 194 (10.8%) were 20-44 years, and 11 (0.6%) were <20 years of age. ICU admission was required for 216 hospitalizations; the majority of which were adults ≥65 years of age (123; 56.9%). A total of 116 deaths have been reported: 26 with influenza A(H3N2), one with A(H1N1)pdm09, 82 with A(unsubtyped), 6 with influenza B, and one untyped. More than 85% of the deaths (99/116) were in adults ≥65 years of age, 14 (12.1%) were adults 45-64 years of age, and 3 (2.6%) were 20-44 years of age.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Provincial/Territorial Influenza Hospitalizations and Deaths (Aggregate Surveillance System)

In week 20, 46 laboratory-confirmed influenza-associated hospitalizations were reported from participating provinces and territories*. For the second week in a row, the majority of cases were influenza B (58.7%). The highest proportion of hospitalisations were in adults ≥65 years of age (50.0%), followed by children 0-4 years of age (23.9%). Of the 15 cases with available data, two were admitted to the ICU; one adult ≥65 years of age with influenza A(H3), and the other a child 0-4 years of age with influenza B. Four deaths were reported in week 20; two children 0-4 years of age and two adults ≥65 years of age, all with influenza A.

To date this season, 4,859 influenza-associated hospitalizations have been reported, of which 87.5% have been influenza A. Of those subtyped (49.0%), influenza A(H3) was the predominant influenza strain. The cumulative proportion of influenza B among hospitalizations with influenza continues to increase (12.5% in week 20). Age information was available for 4,856 cases, and the age distribution is as follows: 2,573 (53.0%) were ≥65 years of age; 804 (16.6%) were 45-64 years of age; 437 (9.0%) were 20-44 years of age; 39 (0.8%) were 15-19 years of age; 249 (5.1%) were 5-14 years; and 754 (15.5%) were 0-4 years of age. Of the 1,365 cases with available data, there have been 218 hospitalisations for which admission to an ICU was required; the highest proportions have been in adults 45-64 years of age, followed by adults ≥65 years of age (36.2% and 33.9%, respectively). To date, 302 deaths have been reported: 248 adults ≥65 years of age, 35 adults 45-64 years; 11 adults 20-44 years, one child 5-14 years of age, and seven children 0-4 years of age. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

Note*: The number of new influenza-associated hospitalizations and deaths reported by the Aggregate Surveillance System each week may be overestimated, as it may include retrospective updates to data from Ontario for previous weeks. These data may also include cases reported by the IMPACT and PCIRN networks. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not reported in Ontario.

International Influenza Updates

WHO: No new influenza surveillance update was available from the World Health Organization since 10 May 2013.
World Health Organization influenza update

Northern Hemisphere

United States: During week 19, influenza activity remained low. The national percentage of outpatient visits for ILI was below the national baseline. The proportion of tests positive for influenza viruses was 5.1%, wit.. 75.8% identified as influenza B. During the 2012-13 season, 71% of laboratory detections were influenza A [65% A(H3N2), 3% A(H1N1)pdm09 and 33% A(unsubtyped)] and 29% were influenza B. Among the 12,348 influenza-associated hospitalizations reported to date this season, 79.1% were associated with influenza A of which 95.9% were A(H3N2), and approximately 50% were among adults ≥65 years. The most common underlying conditions associated with hospitalizations among adults were cardiovascular disease, metabolic disorder, obesity and chronic lung disease (excluding asthma). Approximately 44% of hospitalized children had no identified underlying medical condition. The most common underlying conditions among paediatric cases were asthma, neurologic disorders and immune suppression. Among 702 hospitalized women of childbearing age (15-44 years), 208 were pregnant, including 7 pregnancies among the 38 pediatric cases in this category. A total of 139 influenza-associated paediatric deaths have been reported to date this season, 64 with influenza A, 74 with influenza B and one with both influenza A and B.
Centers for Disease Control and Prevention seasonal influenza report

Europe: In week 19, all countries reported low intensity of ILI/Acute Respiratory Infection (ARI) activity and most reported a decreasing trend. Few specimens tested positive for influenza in week 19, and influenza B has been predominant for the past six weeks. Since the beginning of the season, 62% of detections from sentinel and non-sentinel sources were influenza A [67% A(H1N1)pdm09 and 33% A(H3N2)] and 38% were influenza B. The number of hospitalizations for severe acute respiratory illness (SARI) and the number positive for influenza have returned to pre-season levels.
EuroFlu weekly electronic bulletin

Southern Hemisphere

South America: ARI activity showed an increasing trend in week 19, but was within expected levels for this time of year. Andean countries reported co-circulation of RSV and influenza A(H3N2), except for Bolivia where influenza B was predominant. Chile and Brazil reported increasing detections of influenza A(H1N1)pdm09 in recent weeks. RSV is the predominant virus circulating in the Southern Cone.
PAHO Influenza Situation Report

Australia & New Zealand: Consultation rates for ILI were below the baseline level, with few specimens positive for influenza in week 19.
New Zealand Public Health Surveillance
Australia Influenza Report
WHO FluNet

Emerging Respiratory Pathogens

Human Avian Influenza
Influenza A(H7N9): No new human cases of infection with avian influenza A(H7N9) have been reported since 8 May 2013 by the WHO. The deaths of four previously confirmed cases were reported on 17 May 2013. Since March 2013, 131 cases and 36 deaths of avian influenza A(H7N9) have been reported from eight provinces and two municipalities in eastern China.
PHAC – Avian influenza A(H7N9)
PHAC – A(H7N9) risk assessment
WHO – Influenza at the human-animal interface
WHO – Disease Outbreak News
WHO – Frequently Asked Questions on human infection with influenza A(H7N9)

Human Swine Influenza
No new human cases of infection with swine influenza viruses or variants were reported in week 19.
Centers for Disease Control and Prevention seasonal influenza report

Novel Coronavirus (HCoV-EMC/2012)
Since 17 May 2013, four new confirmed cases, one probable case, and two additional deaths due to novel coronavirus (HCoV-EMC/2012) have been reported by WHO. One case and one death of a previously confirmed case are

associated with the healthcare-related cluster in Saudi Arabia. An additional case reported by Saudi Arabia resulted in death, and was unrelated to the healthcare cluster. Tunisia has reported its first cases (two laboratory-confirmed and one probable) of infection with HCoV-EMC/2012. The two laboratory-confirmed cases are a 34-year-old man and a 35-year-old woman who are siblings; both had mild respiratory illness and did not require hospitalization. Their father became ill after returning from Qatar and Saudi Arabia on 3 May 2013, and developed acute respiratory disease and died on 10 May 2013 following ICU admission. He is currently considered a probable case as his laboratory test in Tunisia was interpreted as negative. Investigations are on-going. This cluster is suggestive of limited human-to-human transmission. Since the beginning of May 2013, a total of 22 cases, with 10 deaths, have been identified as part of the healthcare-related cluster in Saudi Arabia. Since April 2012, 44 laboratory-confirmed cases and one probable case of human infection with HCoV-EMC/2012 have been identified, including 22 deaths. Most patients are male (75%; 33 of 44 cases) and range in age from 24 to 94 years (median 56 years).

PHAC – Novel coronavirus (HCoV-EMC/2012)
PHAC – HCoV-EMC/2012 risk assessment
WHO – Coronavirus infections

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.